

WHAT IS CLAIMED IS:

1. An ink-jet head comprising:

a passage unit including a plurality of cavity recesses  
5 arranged in a matrix, each communicating with both a nozzle for  
ejecting ink and a common ink chamber and each constituting a  
cavity of a pressure chamber, and a plurality of peripheral  
recesses arranged along a whole periphery of the plurality of  
cavity recesses and each communicating with neither the nozzle  
10 nor the common ink chamber; and

an actuator unit that closes openings of the cavity  
recesses to define a plurality of pressure chambers with the  
passage unit, and change the volume of each pressure chamber.

15 2. The ink-jet head according to claim 1, wherein the  
plurality of peripheral recesses are arranged at a same interval  
as that between the cavity recesses.

3. The ink-jet head according to claim 1, wherein a  
20 contour of a region of an opening of the peripheral recess facing  
to the cavity recess is parallel to a contour of a region of  
the opening of the cavity recess facing to the peripheral  
recess.

25 4. The ink-jet head according to claim 1, wherein the

opening of the peripheral recess has a same shape and a same size as those of the opening of the cavity recess.

5        5.    The ink-jet head according to claim 1, wherein a distance between the peripheral recess and the cavity recess is the same as a distance between the neighboring cavity recesses.

10       6.    The ink-jet head according to claim 1, wherein the actuator unit is fixed to passage unit such that the opening of each cavity recess and the opening of each peripheral recess is closed.

15       7.    The ink-jet head according to claim 1, wherein the opening of the cavity recess and the opening of the peripheral recess have a shape of parallelogram with two acute portions, and one acute portion of the opening of the peripheral recess is located between the openings of two cavity recesses adjacent to the relevant peripheral recess.

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8.    An ink-jet head comprising:

      a first plate including a plurality of cavity holes arranged in a matrix, each constituting a cavity of a pressure chamber, and a plurality of peripheral holes arranged along a whole periphery of the plurality of cavity holes;

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a second plate put on one face of the first plate such that an opening on one side of each cavity hole is closed; and

a third plate formed with first and second connection holes corresponding to each of the plurality of cavity holes, the third plate being put on the other face of the first plate such that the first and second connection holes are connected with the corresponding cavity hole to define the plurality of pressure chambers with the first plate and the second plate.

9. The ink-jet head according to claim 8, wherein the plurality of peripheral holes are arranged at a same interval as that between the cavity holes.

10. The ink-jet head according to claim 8, wherein a contour of a region of an opening on one side of the peripheral hole facing to the cavity hole is parallel to a contour of a region of the opening on one side of the cavity hole facing to the peripheral hole.

11. The ink-jet head according to claim 8, wherein the opening on one side of the peripheral hole has a same shape and a same size as those of the opening on one side of the cavity hole.

12. The ink-jet head according to claim 8, wherein a

distance between the peripheral hole and the cavity hole is the same as a distance between the neighboring cavity holes.

13. The ink-jet head according to claim 8, wherein the  
5 second plate is put on one face of the first plate such that the opening on one side of each cavity hole and the opening on one side of each peripheral hole are closed.

14. The ink-jet head according to claim 8, wherein the  
10 opening on one side of each peripheral hole is closed with the second plate, and the opening on the other side of each peripheral hole is closed with the third plate.

15. The ink-jet head according to claim 8, wherein  
15 openings on both sides of the cavity hole and openings on both sides of the peripheral hole have a shape of parallelogram with two acute portions, and one acute portion of each opening of the peripheral hole is located between the openings of two cavity holes adjacent to the relevant peripheral hole.

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